UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,006	03/23/2004	Warren E. Kelm	1910001US2AP	4650

27542 7590 08/28/2006

SAND & SEBOLT
AEGIS TOWER, SUITE 1100
4940 MUNSON STREET, NW
CANTON, OH 44718-3615

EXAMINER	
JOERGER, KAITLIN S	

ART UNIT	PAPER NUMBER
3653	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/808,006	KELM, WARREN E.	
	Examiner	Art Unit	
	Kaitlin S. Joerger	3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) 20-30 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 23 March 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/23/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Levy et al.

Regarding claim 15, Levy et al. teaches an apparatus to separate clean coal from raw coal without the use of water, the apparatus comprising:

- a first hopper, 21;
- a second hopper, 23;
- a mechanical separator, 22;
- a first conveyor, 25;
- a magnetic separator, 29;
- a second conveyor, see column 10, lines 61+.

Regarding claims 17 and 18, Levy et al. further teaches that the magnetic separator includes a rotating drum and a magnet, see column 11, lines 1+; and that the magnetic particles are magnetic.

Regarding claim 19, Levy et al. further teaches that the magnetic particles are magnetite, and the standard shape and size of magnetite particles are spheres ranging between 150 and 500 micorns.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al. in view of Fraas.

Regarding claim 1, Levy et al. teaches a system for cleaning raw coal including:

- a supply of raw coal and debris; a supply of magnetic particles;
- a separator for receiving the raw coal and a quantity of magnetic particles, the magnetic particles creating a fluidized bed which separates the clean coal from the debris, and for discharging the clean coal from the separator separately from a mixture of the magnetic particles and debris, see figure 2 and column 8, lines 22+; and
- a magnetic separator, see column 11, lines 1+, for receiving the mixture of magnetic particles and debris fro the separator and separating the magnetic particles from the debris.

Levy et al. does not however teach that the separator is a vibratory separator, but Fraas does teach such a separator. Fraas teaches a vibratory separator for use in coal cleaning that forms a fluidized bed of material, he teaches that the vibratory separator is for the purpose of improving the separating ability of the fluidized bed, see column 2, lines 31+. It would have been obvious to one of ordinary skill in the art to use a vibration-fluidized bed combination as taught by Frass for the purpose of improving the separation ability of the separator and thereby improving the efficiency of the coal cleaning apparatus.

Regarding claims 2-3, Levy et al. further teaches a first hopper, 21, for storing supplies of raw coal, a second hopper, 23, for storing supplies of magnetic particles; a conveyor, 25, for transporting the raw coal from the first hopper to the vibratory separator; and a chute and conveyor for removing and returning the magnetic particles to the supply hopper, see figure 3 and column 10, lines 61+.

Regarding claims 6 and 7, Fraas teaches a rotary vibrator, see column 6, lines 58+, a separating chamber, see figure 1, and a scraper plate, 9. The separating chamber includes an inlet, and an outlet, the scraper plate located adjacent the outlet and is in communication with a first, 17, and second, 15, discharge duct located at the outlet, the first duct receives the mixture of magnetic particles and debris and the second duct received the clean coal.

Regarding claim 8, Levy et al. further teaches ducts, see figure 6, wherein the first and second ducts communicated with the magnetic separator.

Regarding claim 9, Levy et al. further teaches that the magnetic separator includes a rotating drum and a magnet located within the drum, see column 11, lines 1+.

Regarding claim 10, Levy et al. teaches a method of cleaning raw coal including the steps of:

- mixing a quantity of raw coals containing clean coal and debris with a quantity of magnetic particles;
- feeding the mixture of magnetic particles and raw coal to a separator with the magnetic particles creating a fluidized bed to separate clean coal from debris; and
- removing the clean coal from the separator.

Levy et al. does not, however, teach that the separator is a vibratory separator, but Fraas does. Fraas teaches a method of cleaning raw coal used a vibratory-fluidized bed combination, the vibratory motion used for the purpose of improving the separating ability of the fluidized bed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine a vibratory separator with the fluidized bed of Levy et al. as taught by Fraas for the purposed of improving the separating ability and overall efficiency of the coal cleaning apparatus.

Regarding claims 11-14, Levy et al. further teaches a method step of removing the magnetic particles from the separator and feeding the magnetic particles and debris to a magnetic separator and separating the magnetic particles; removing the magnetic particles from the magnetic separator and returning the particles to a supply of magnetic particles for reuse; storing a supply of magnetic particles in a hopper, 23, and providing a conveyor for returning the separated magnetic particles from the magnetic separator into the supply of particles, see column 10, lines 60+; providing a rotating drum and a magnetic field adjacent a part of the drum; moving

the stream of debris and magnetic particles through the magnetic field; moving the drum past the magnetic field to remove the adhered particles therefrom, see column 11, lines 1+.

Regarding claim 16, Levy et al. does not however teach that the separator is a vibratory separator, but Fraas does teach such a separator. Fraas teaches a vibratory separator for use in coal cleaning that forms a fluidized bed of material, the vibratory separator including a rotary vibrator, see column 6, lines 58+, a shaker table, 5, and a scraper plate, 9. He teaches that the vibratory separator is for the purpose of improving the separating ability of the fluidized bed, see column 2, lines 31+. It would have been obvious to one of ordinary skill in the art to use a vibration-fluidized bed combination as taught by Frass for the purpose of improving the separation ability of the separator and thereby improving the efficiency of the coal cleaning apparatus.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al. in view of Fraas as applied to claims 1 and 4 above, and further in view of Hicks et al.

Levy et al. teaches a conveyor to return the separated magnetic particles into the particle supply. However, Levy et al., does not specifically teach that the conveyor is a belt conveyor and a bucket/elevator conveyor, but Hicks et al. does. Hicks et al. teaches an elevator conveyor for the purpose of returning separating medium to the supply, see column 6, lines 8+. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the conventional elevator conveyor taught by Hicks et al. for the purpose of returning the separated magnetic particles back to the supply for reuse.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaitlin S. Joerger whose telephone number is 571-272-6938. The examiner can normally be reached on Monday - Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on 571-272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ksj

22 August 2006

PATRICK MACKEY
PRIMARY EXAMINER